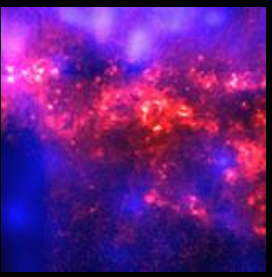
National Aeronautics and Space Administration

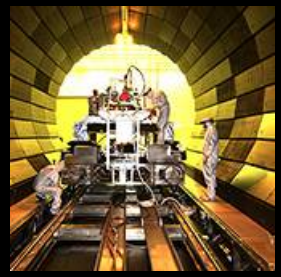


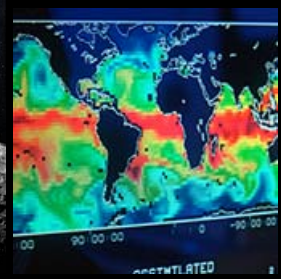




Marshall Space Flight Center

New Supervisor Orientation



Robin N. Henderson
Associate Center Director

November 27, 2007

www.nasa.gov

Marshall Space Flight Center at a Glance

- **Employees:** 7,000 (2,600 Civil Service; 4,400 contractor)
- **Location:** 1,841 acres on Redstone Arsenal in Huntsville, AL
- **Buildings:** 237 with 4.5M sq ft of space
- **One-of-a-kind facilities:** 50
- **Nearby resources:**
  - National Space Science & Technology Center
  - Cummings Research Park
  - Alabama A & M University
  - University of Alabama in Huntsville
  - U.S. Space & Rocket Center

- **$2.7B budget (FY07)**
- **$1B annual Alabama impact**
- **Payroll since 1960: $6.1B**
- **Engages 20,800 people in 47 states**
- **Manages Michoud Assembly Facility near New Orleans**

Marshall Space Flight Center History

Proven History of End-to-End Systems Development and Operations

1958

• Huntsville's Army team uses a Jupiter-C rocket to launch Explorer I, America's first satellite.
• (1958)

1960

• MSFC Established Dr. Wernher Von Braun, First Director (1960)

1961

• Shepard's Flight Aboard MSFC Tested Redstone Rocket (1961)

1962

• Project Highwater (1962)

1964

• Saturn Test Firing at MSFC (1964)

1969

• Apollo 11 (1969)

1971

• Lunar Roving Vehicle (LRV) driven on moon (1971)


• Apollo 14 Carried MSFC Experiments (1971)

1973

• Skylab (1973)

1975

• Apollo-Soyuz Test Project (1975)

1976

• LAGEOS I (Laser Geodynamics Satellite) (1976)

1977-79

•HEAO-1 (1977)
•HEAO-2 (1978)
•HEAO-3 (1979)

1981

• STS-1 is launched (1981)

1983

• First Spacelab Mission (STS-9) (1983)

1987

• Launches 20+ years of Microgravity Expertise at Marshall.


• Solid Rocket Motor Re-Design (1987)

1990

• Hubble Launched (1990)

1990

• ASTRO-1 was launched aboard the Space Shuttle Orbiter Columbia (STS-35) on December 2, 1990 (1990)

1995

• First U.S./MIR Rendezvous (1995)

1998

• First Flight - Super Lightweight External Tank (1998)

1998

• ISS Assembly Begins (1998)

1999

• Chandra was launched July 23, 1999 aboard the Space Shuttle Columbia STS-93 mission (1999)

2004

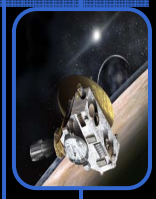
• Gravity Probe B (2004)

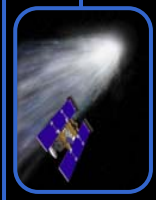

• Shuttle Upgrades

2005

• Begin work on Crew Launch Vehicle (2005)


• Node-2 readied for launch to Station, MSFC managed

2006

• New Horizons to Pluto launched (2006)


• Stardust returns comet dust to Earth (2006)

NASA explores for answers that power our future

Marshall Space Flight Center links science and exploration to provide significant contributions to NASA's mission.

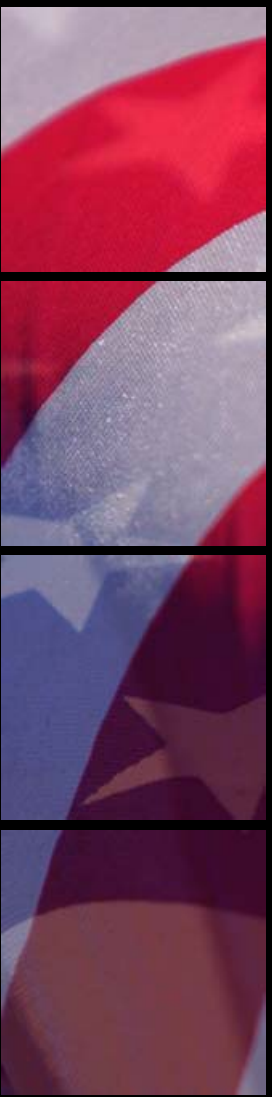
Space Transportation and Propulsion Systems
Proven launch systems and propulsion expertise

Human-Rated Space Systems Development and Integration
Development of systems and technology for human space exploration

Scientific Spacecraft, Instruments and Research
Cutting-edge scientific research providing answers that improve the world

NASA's Strategic Goals

Marshall plays an essential role



- Fly the Shuttle as safely as possible until its retirement, not later than 2010.
- Complete the International Space Station in a manner consistent with NASA's International Partner commitments and the needs of human exploration.
- Develop a balanced overall program of science, exploration, and aeronautics consistent with the redirection of the human spaceflight program to focus on exploration.
- Bring a new Crew Exploration Vehicle into service as soon as possible after Shuttle retirement.
- Encourage the pursuit of appropriate partnerships with the emerging commercial space sector.
- Establish a lunar return program having the maximum possible utility for later missions to Mars and other destinations.

Marshall Priorities

Fulfilling on-going management responsibilities

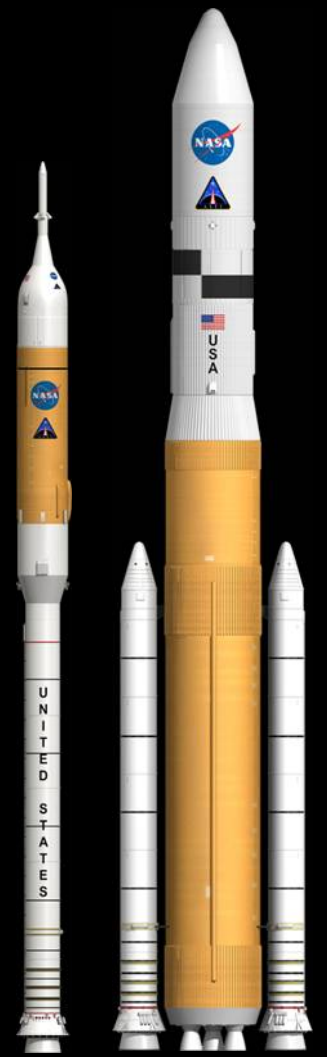
- Space shuttle propulsion elements
- International Space Station elements, payloads & payload operations
- Chandra X-Ray Observatory and Gravity Probe-B programs
- Discovery and New Frontiers Exploration programs

Gateway to long-term lunar presence

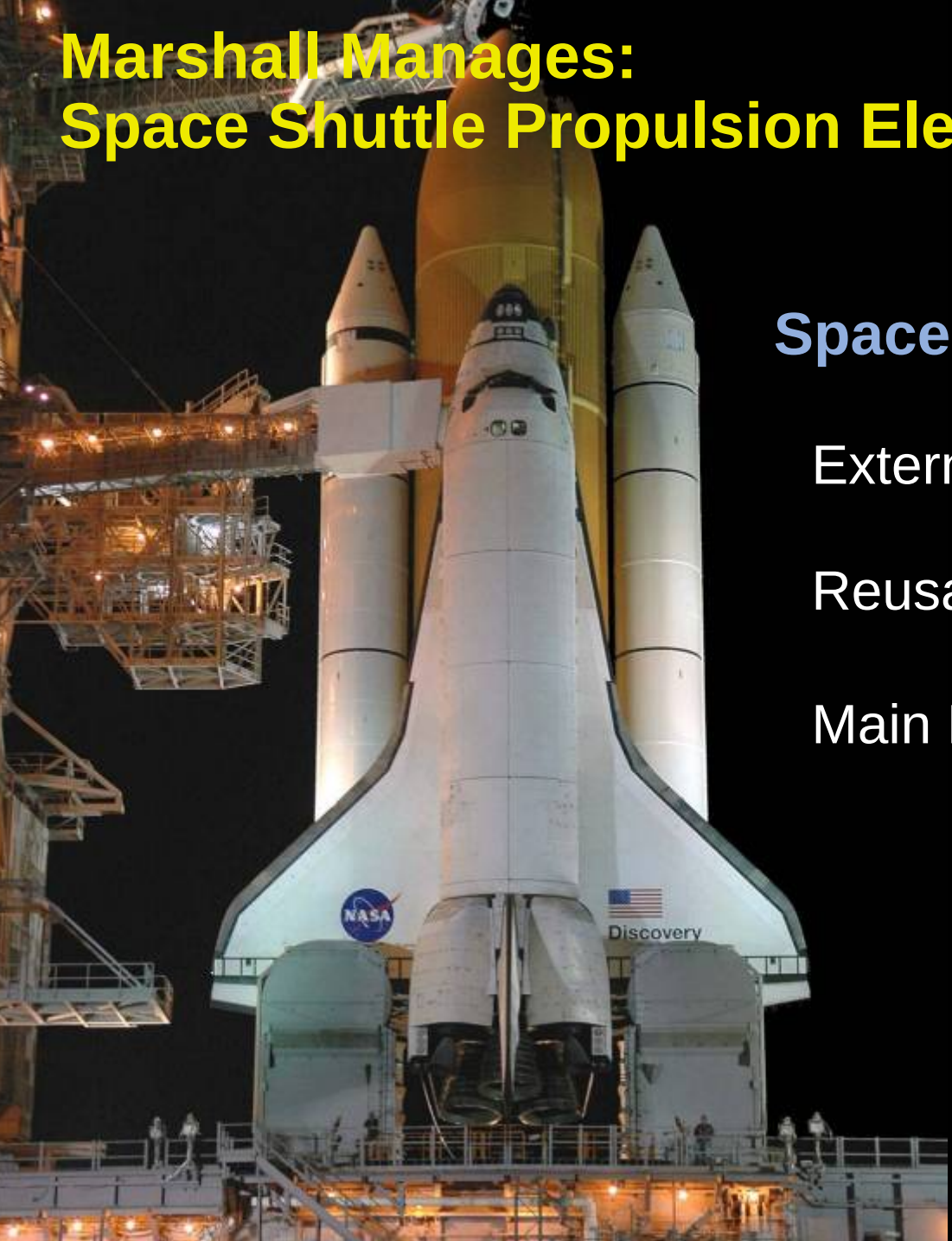
- Ares I crew launch vehicle
- Ares V cargo launch vehicle
- Participation in early lunar lander definition and lunar architecture studies

Science and technology development

- Earth and space science – research and instrument development
- National Center for Advanced Manufacturing – sophisticated materials development
- Space Optics Manufacturing Technology Center – large optics manufacturing / testing



Marshall Manages:
Space Shuttle Propulsion Elements



Space Shuttle - ***26 years of flight***

External Tank

Reusable Solid Rocket Boosters

Main Engines

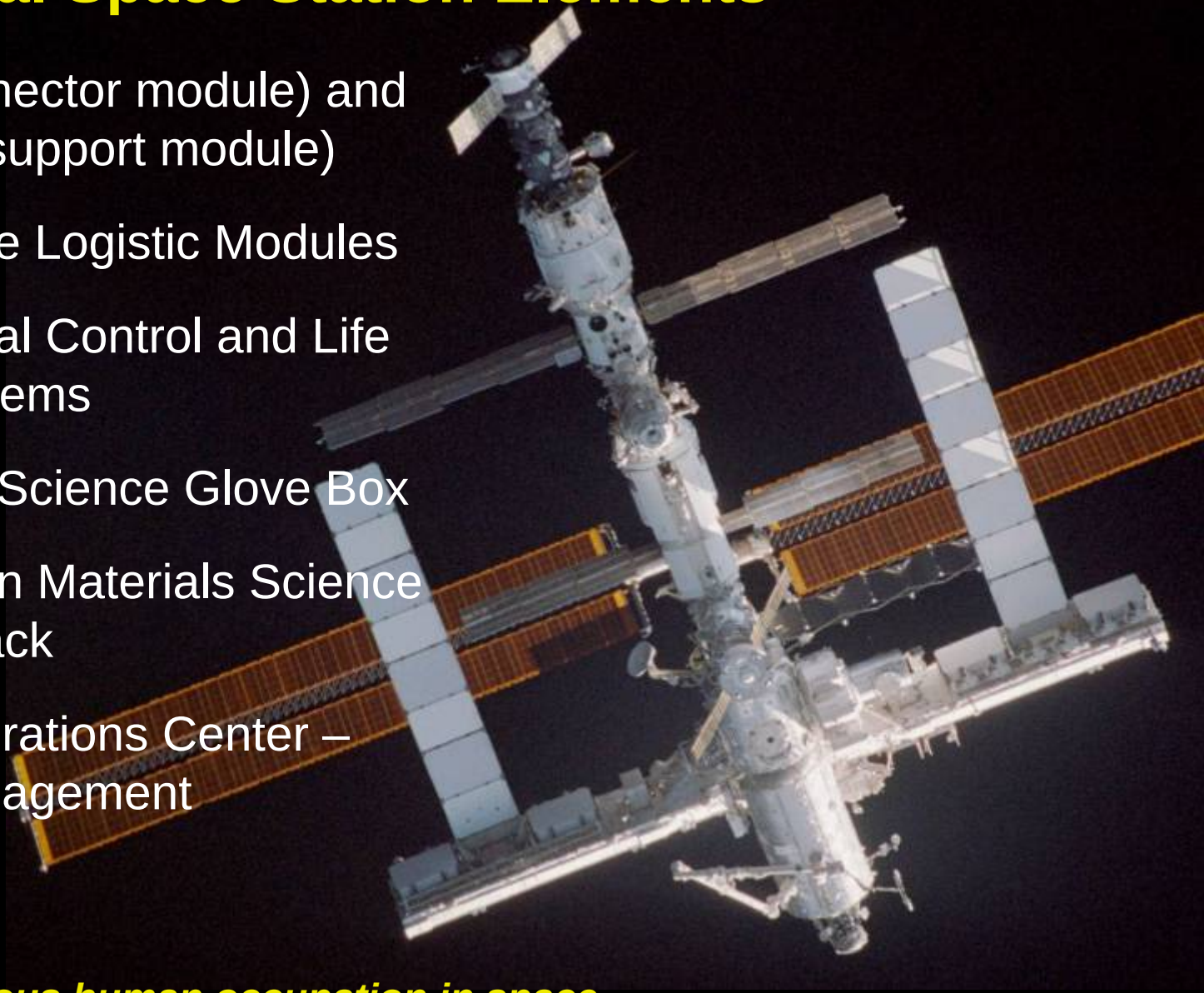
Shuttle Transition:
A MSFC Management Priority

Initial Assessment of Shuttle Capabilities Complete - Transition or Retirement of Capabilities Underway

- Workforce
- Facilities
- Equipment
- Contracts / Suppliers

Marshall Manages: International Space Station Elements

- Node 2 (connector module) and Node 3 (life support module)
- Multi-Purpose Logistic Modules
- Environmental Control and Life Support Systems
- Microgravity Science Glove Box
- Space Station Materials Science Research Rack
- Payload Operations Center – Science management



6 years continuous human occupation in space

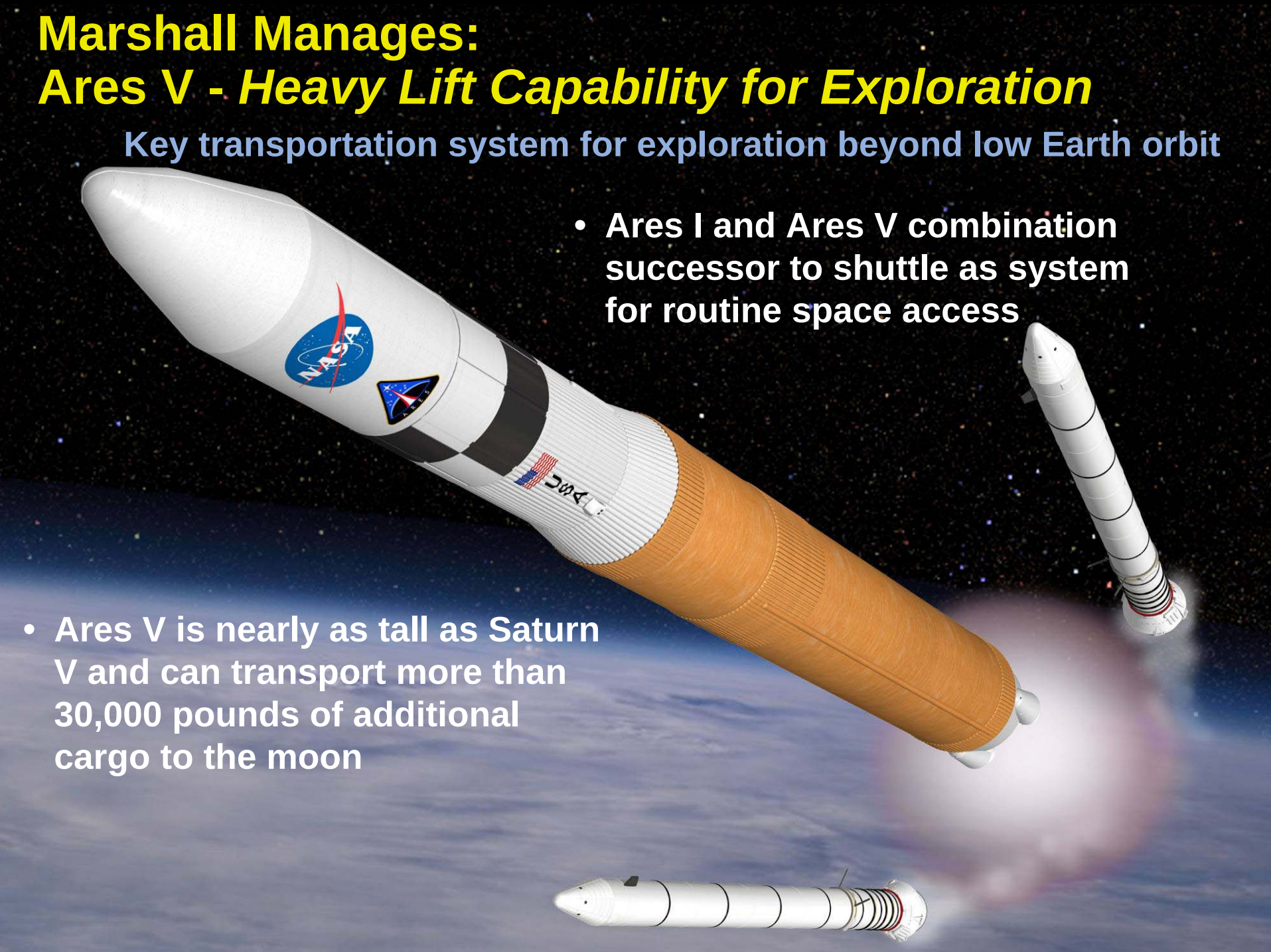
Marshall Manages:
Ares I - *Built on Proven Systems*

Marshall has essential development tasks

- Systems engineering and integration
- Safety and mission assurance
- First stage design and upper stage engine development and contracts management
- Upper stage design, development, testing, and evaluation
- Flight testing and evaluation
- Support Orion crew vehicle, Launch Abort System, Service Module
- First test flight in 2009

Marshall Manages:
Ares V - *Heavy Lift Capability for Exploration*

Key transportation system for exploration beyond low Earth orbit

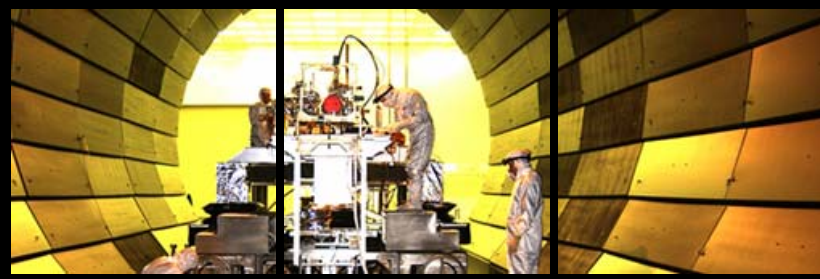


- Ares I and Ares V combination successor to shuttle as system for routine space access
- Ares V is nearly as tall as Saturn V and can transport more than 30,000 pounds of additional cargo to the moon

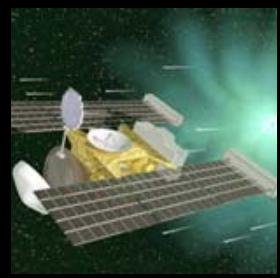
Excellence in Science at Marshall…

NSSTC

X-Ray Cal Facility



- *Scientific Research*
  - *Hardware Development & Testing*
    - *Program & Project Management*



Discovery & New Frontiers

Science at Marshall…

- **Begun under Wernher VonBraun and Ernst Stuhlinger** –
  Science was important from the beginning :
  What could be learned using the transportation infrastructure?

- **Significant roles in major NASA Science Activities** –
  Skylab, HEAO, SpaceLab, Hubble, Compton/GRO, Chandra.

- **Significant roles in smaller NASA Science Activities** –
  Solar Max, DE, Polar, IMAGE, TRMM, Gravity Probe B, Hinode, GLAST

- **An "Emission Line Spectrum" of research expertise** –
  We don't do "everything",
  but in those areas where we do science, we excel.

- **The Intersection of Science and Exploration** –
  The human space flight mission *enables* science *(microgravity, materials, life, … lunar)* …
  Science *informs* human exploration *(lunar reconnaissance, space weather)* …
  Skill in human-rated systems payload integration an *asset (Spacelab, ISS, Compton, Chandra)*

Gravity Probe B

Hubble

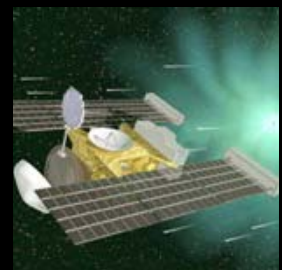
Skylab

Spacelab

BATSE/CGRO

Chandra

Discovery & New Frontiers



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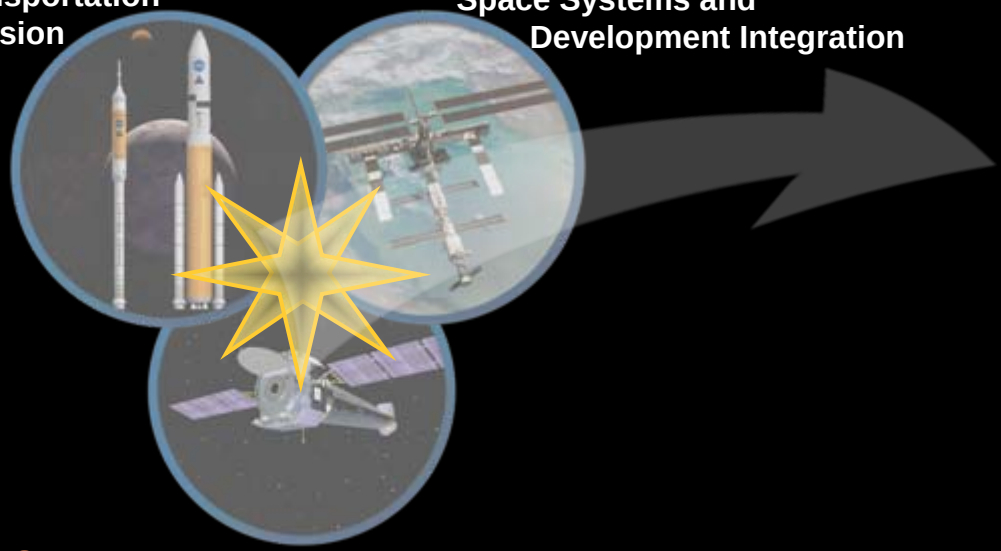


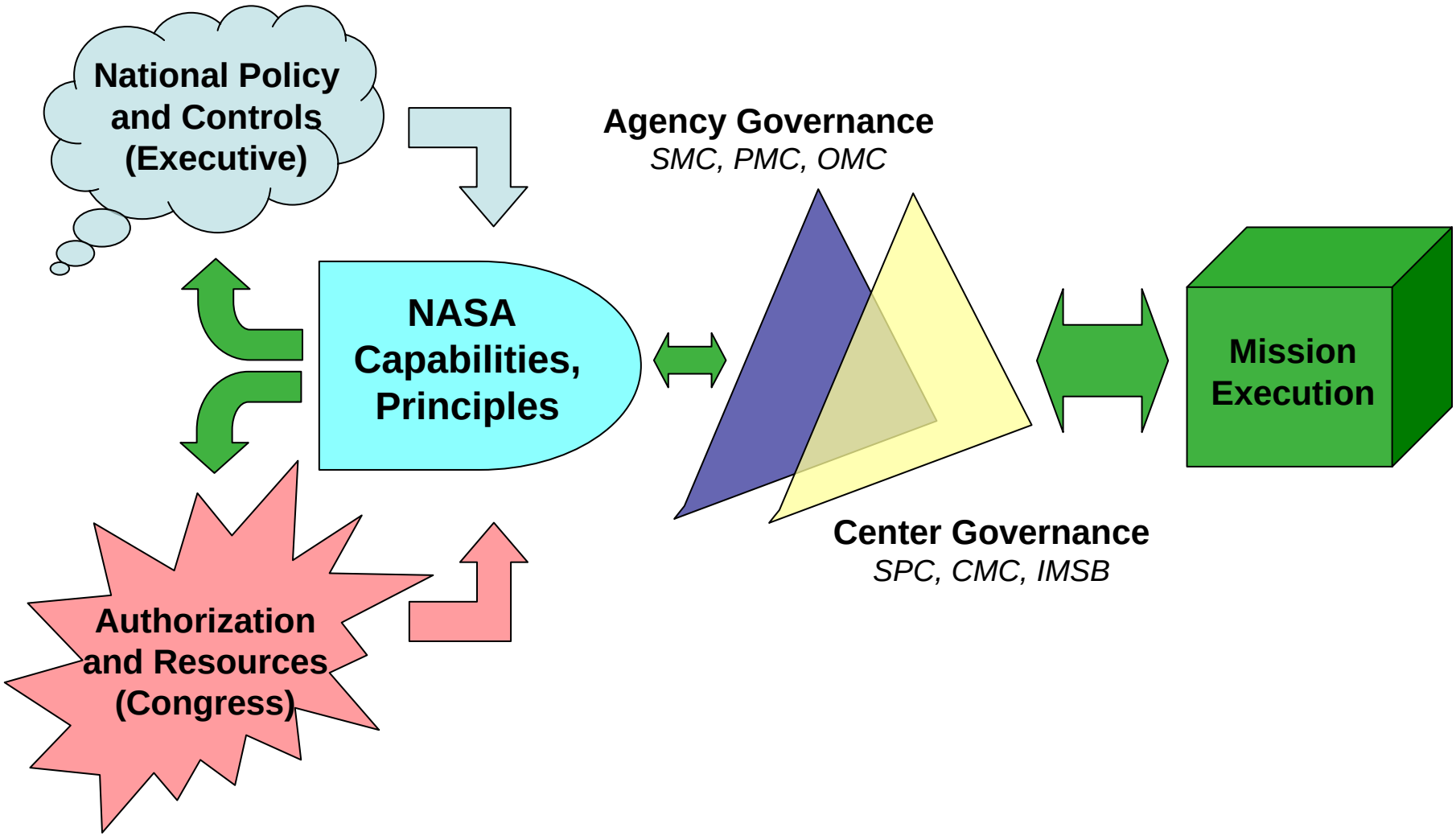
MSFC has unique experience in the integration of Human Rated and Scientific Space Flight & Research Systems:

- ISS Research
- Spacelab
- Microgravity Science
- BATSE/CGRO
- Chandra
- Hubble
- Skylab

MSFC's unique expertise will be critical to help fulfill the Agency's mission

We don't set our own direction

… but by succeeding, we can influence it.



Current Environmental Conditions

National Policy Context

- American Leadership
- U.S. Space Policy
- Experience in National Security Arena
- Space System Acquisition Policy
- International Collaboration

Congress' Role and Interests

- Appropriations
- Cost Estimates & Risk Management
- Workforce Levels
- Financial Management of Agency
- Balance of Agency's Mission Portfolio
- Use of the International Space Station

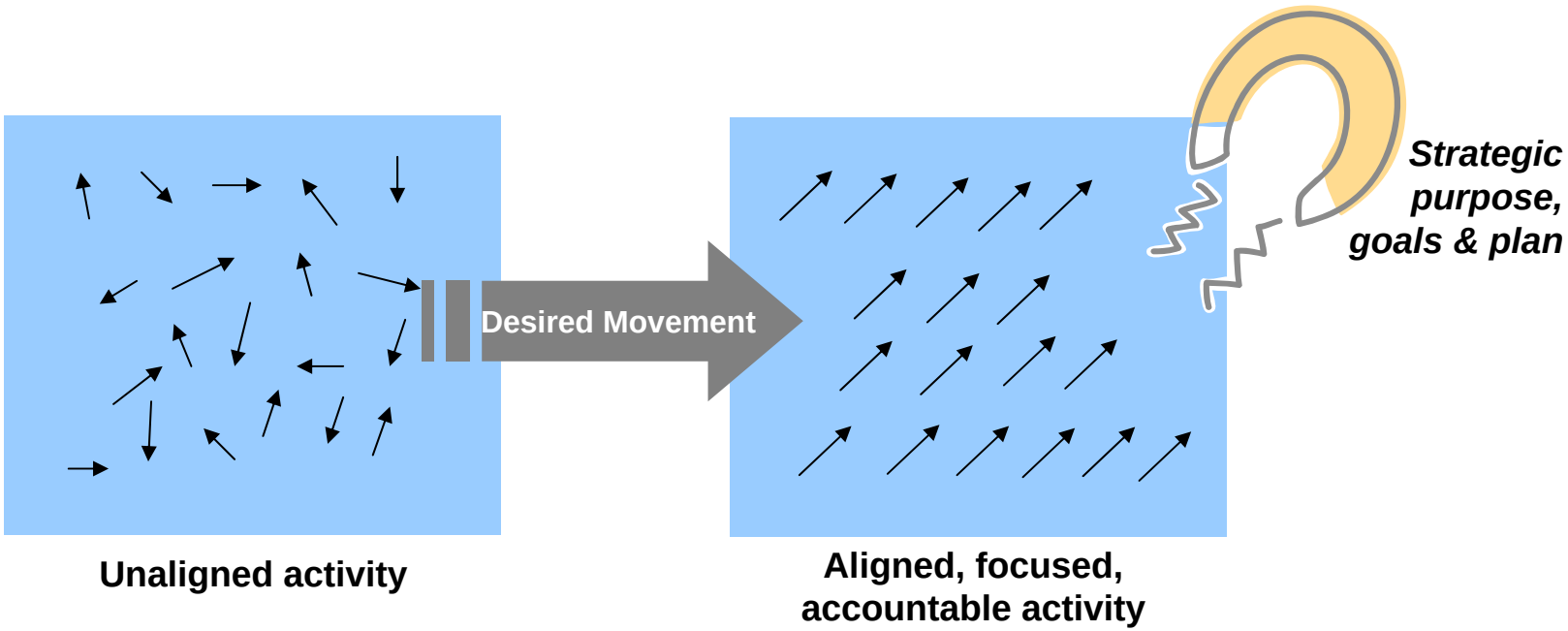
Agency Principles and Guidance

- Mission / Mission Focus
- Strategic Management Principles
  - Ten healthy centers
  - Council Governance and Dual Chain of Command decision-making model
  - The intersection of science and exploration

We need to continually shape our center to meet the agency's needs and adjust to the current environment

Relationship Between Governance & Strategic Direction

The ***purpose of governance*** is ***to ensure alignment***
of the organization's work and resources
to accomplish its strategic direction and goals.



A healthy governance system facilitates changes in the way we work and think – so we can be aligned and adaptable

NASA's Strategic Goals

- Fly the **space shuttle** as safely as possible until its retirement, not later than 2010.
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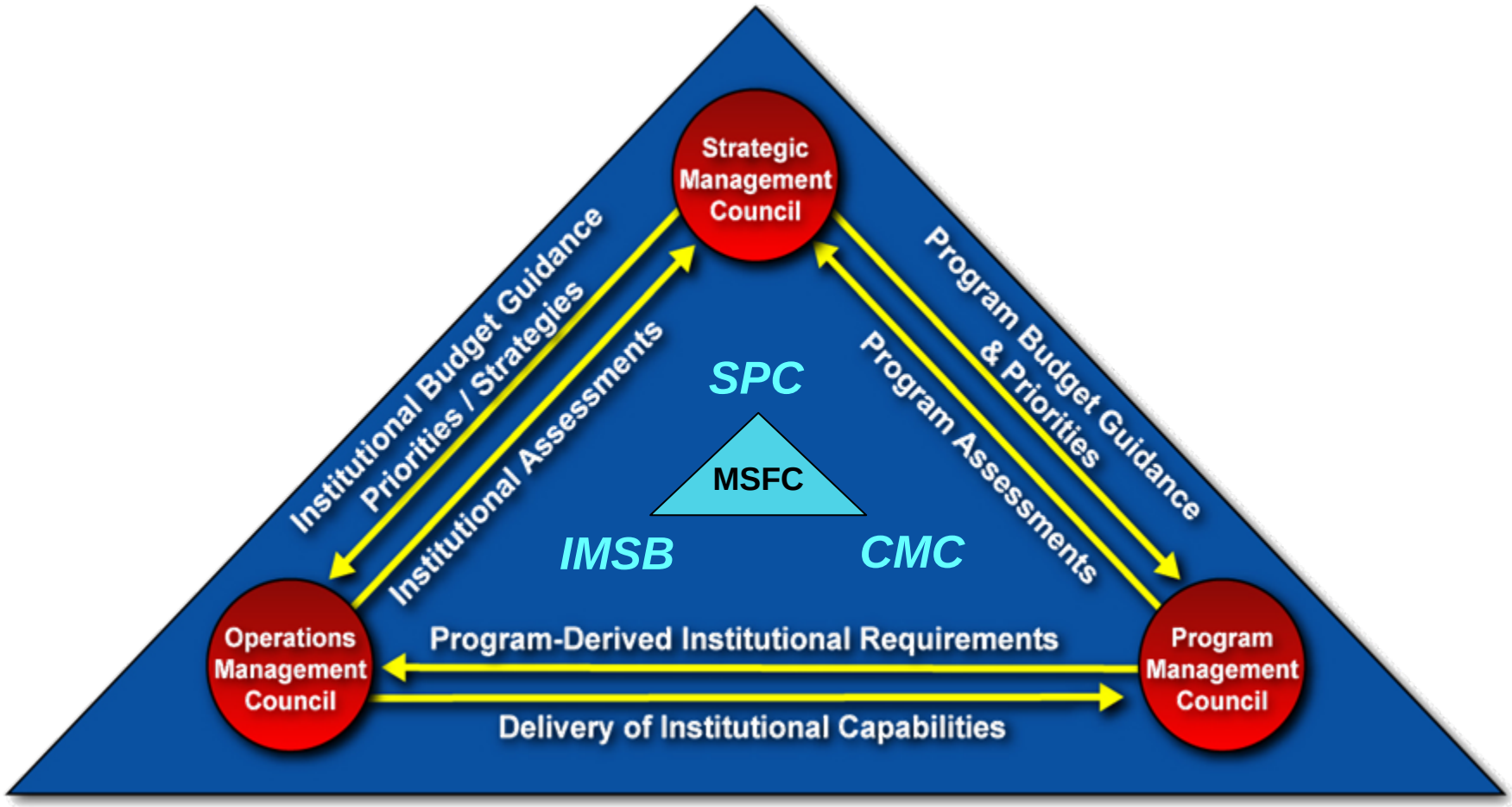
Marshall is crucial to achieving NASA's Vision for Space Exploration

Governance Councils

"Planning"



"Capability"

"Performance"

Management Performance Monitored by Councils

Strategic Planning Council	Integrated Management Systems Board	Center Management Council
Strategic	**Mission Support (Institutional)**	**Mission (Technical)**
Are we meeting our commitments? Are we positioned for the future? Are we investing wisely?	Is the engine running smoothly? Are we disciplined and accountable? Are we spending wisely?	Are we technically sound? Are we aware of, and communicating, risk? Are resources available and in right places?

"Concrete" metrics, reports and agendas underlie these goals.

Priority is placed on outcomes, not activity

Dual Chain of Authority

Line Authority

National Aeronautics and Space Administration

- Chief Safety and Mission Assurance
- Program Analysis and Evaluation
- Chief Engineer
- Program and Institutional Integration

Office of the Administrator
Administrator
Deputy Administrator
Associate Administrator

- Chief of Staff
- Inspector General
- NASA Advisory Groups

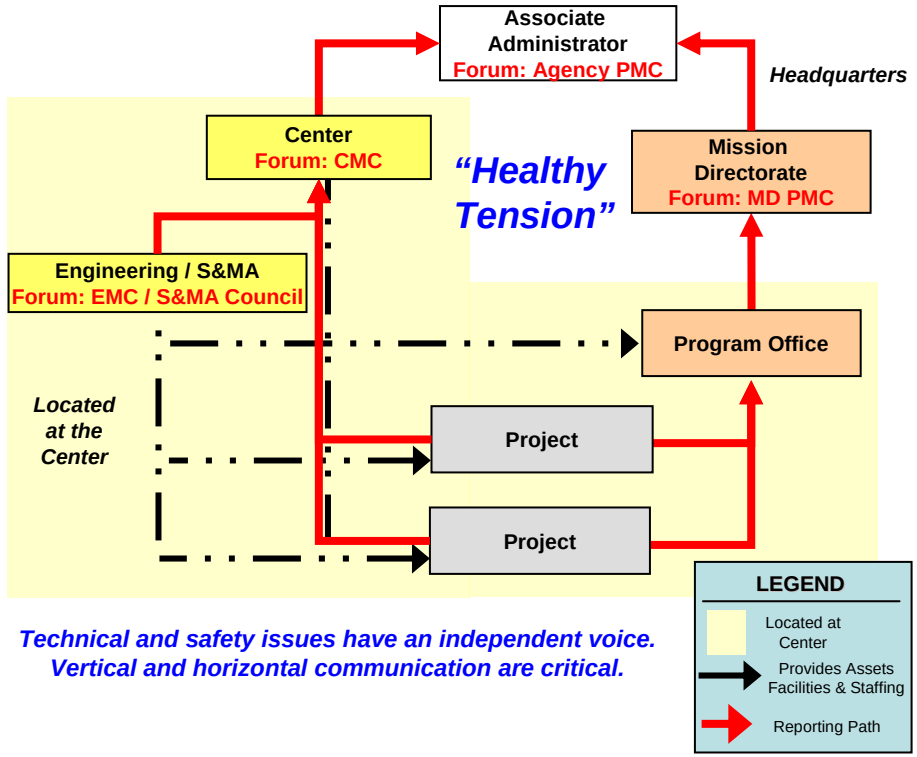
Mission Directorates
- Aeronautics Research
- Exploration Systems
- Science
- Space Operations

Mission Support Offices
- Chief Financial Officer
- Chief Information Officer
- General Counsel
- Integrated Enterprise Management Program
- Innovative Partnership Program
- External Relations
- Chief Health and Medical Officer
- Institutions & Management
  - Diversity and Equal Opportunity*
  - Human Capital Management
  - Infrastructure and Administration
  - Procurement
  - Security and Program Protection
  - Small Business Programs*
  - NASA Shared Services Center
- Strategic Communications
  - Communications Planning
  - Education
  - Legislative and Intergovernmental Affairs
  - Public Affairs

NASA Centers
- Ames Research Center
- Dryden Flight Research Center
- Glenn Research Center
- Goddard Space Flight Center
- Jet Propulsion Laboratory
- Johnson Space Center
- Kennedy Space Center
- Langley Research Center
- Marshall Space Flight Center
- Stennis Space Center

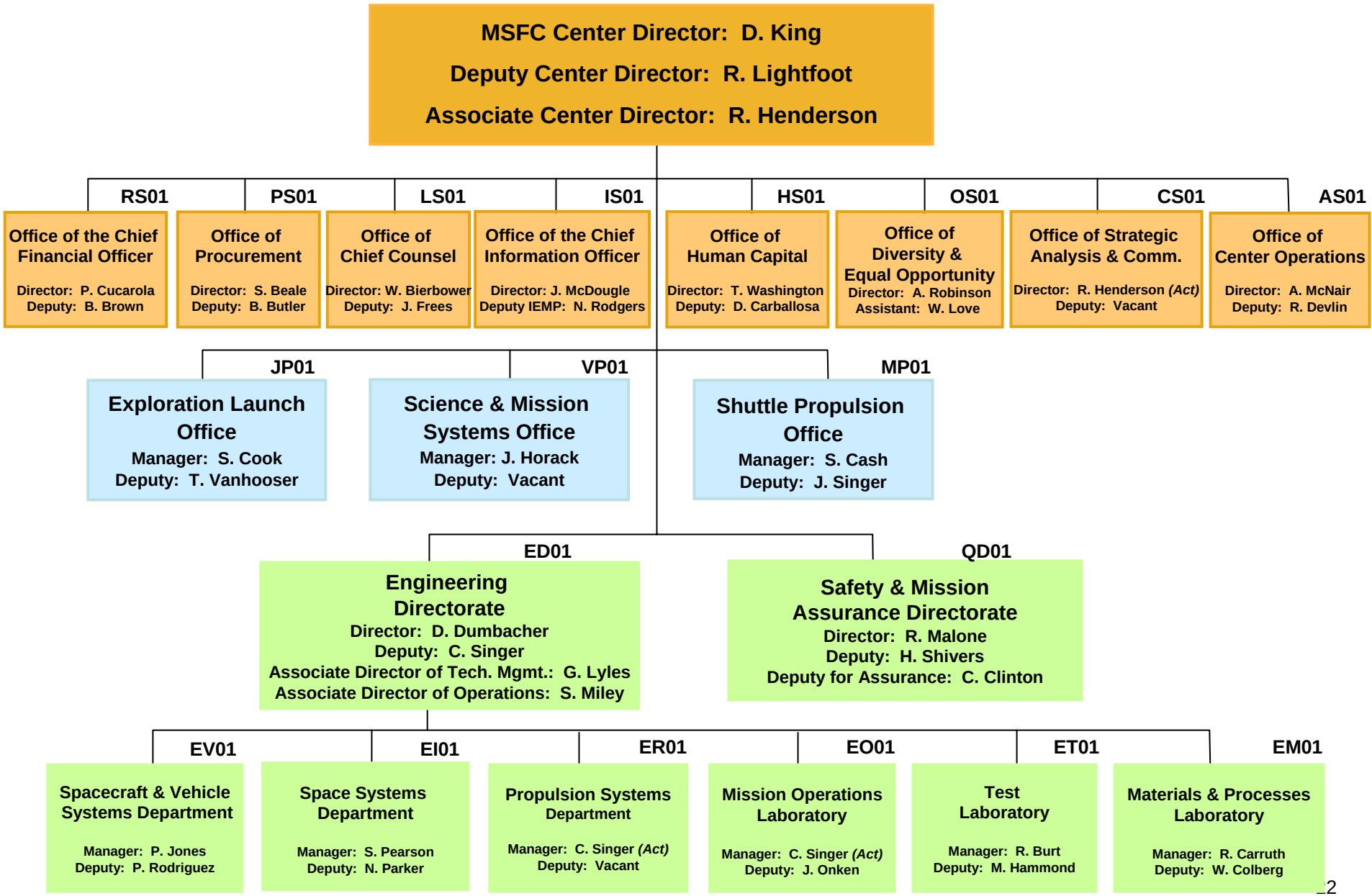
* In accordance with law, the offices of Diversity and Equal Opportunity and Small and Disadvantaged Business Utilization maintain reporting relationships to the Deputy Administrator and Administrator.

Program and Technical Authority



Technical and safety issues have an independent voice. Vertical and horizontal communication are critical.

MSFC Center Organization – Line Authority



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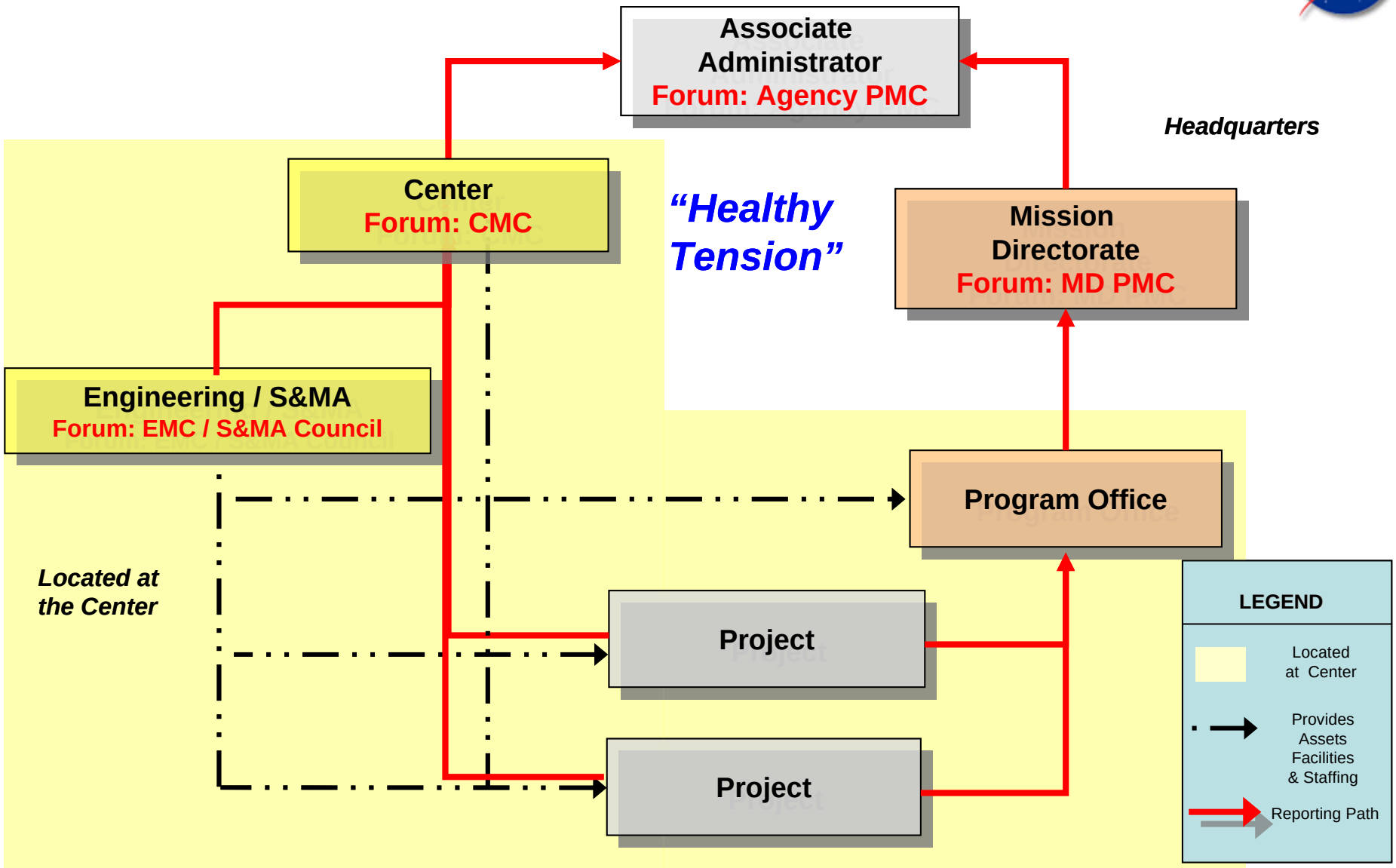

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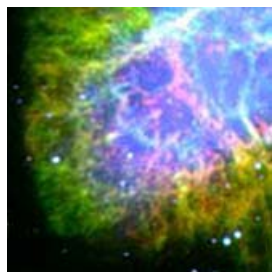
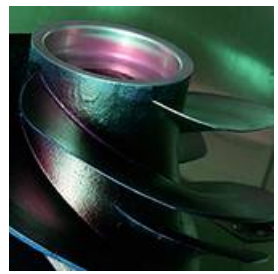
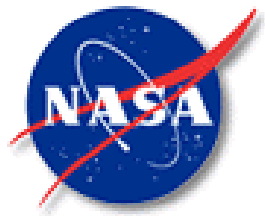
Questions and Answers





The Management Community Resource web address is http://mcr.msfc.nasa.gov/

National Aeronautics and Space Administration



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